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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,132	01/15/2002	Takashi Kaku	FUJI 19.348	4267

7590 04/19/2005  
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EXAMINER

AGHDAM, FRESHTEH N

ART UNIT PAPER NUMBER

2631

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/047,132	KAKU ET AL.	
	Examiner	Art Unit	
	Freshteh N. Aghdam	2631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5 and 6, 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 2001-186276, filed on 06/20/2001.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the expression "prior art" must be shown to figures 2 (A, B, and C), 3 (A and B), 4 (A and B), 5, 6 (A, B, and C), 7 (A-D), 8 (A and B), 9, 10 (A-E), 11 (A-C), 12 (A and B), 13 (A and B), 14 (A and B), 15, and 16 or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

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consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 5 is objected to because of the following informalities:

The word "nose" should be changed to "noise" in order to prevent indefiniteness on page 44, line 18.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borth et al (US 4,630,304), and further in view of the admitted prior art.

As to claims 1, 3, 7, and 9, Borth et al teach a noise suppression method and system comprising recognizing a noise distribution (320) of a received signal (speech

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and noise signal) during no transmission sections wherein no periodical transmission is made (Fig. 3; Col. 1, Lines 40-44; Col. 2, Lines 42-68). Borth et al do not teach receiving a specific signal having a specified time position, amplitude, and phase; predicting a noise by extracting a frequency band having a larger noise component from a pair of frequencies generated by insertion of the specific signal; and reproducing a transmitted original signal by canceling the predicted noise from a reception signal. The admitted prior art, teaches receiving a specific signal having a specified time position, amplitude, and phase (Fig. 4B, Block 27-2, Pg. 14, Lines 12-19); predicting a noise by extracting a frequency band having a larger noise component from a pair of frequencies (Fig. 6B) generated by insertion of the specific signal; and reproducing a transmitted original signal by canceling (i.e. removing) the predicted noise from a reception signal (Fig. 4B, Blocks 27-43 and 27-45; Pg. 19, Lines 24 and 25; Pg. 20, Lines 7-14). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of the admitted prior art with Borth et al in order to reproduce the original transmitted signal (Pg. 14, Lines 2 and 3).

As to claims 2, 4, 8, and 10, the admitted prior art teach a specific signal that is a zero point signal having amplitude of zero and is periodically inserted into the transmitted original signal (Fig. 4B, Block 27-2, Pg. 14, Lines 12-19). Therefore, it would have been obvious to one of ordinary skill in the art in order to combine the teaching of the admitted prior art with Borth et al in order to double the frequency band of the transmission signal (Pg. 15, Lines 33-36).

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Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Borth et al and the admitted prior art, further in view of Prismantas et al (US 2002/0155811).

As to claim 11, Borth et al and the admitted prior art teach all the subject matters as recited in claims 9 and 10, except for the noise distribution recognition apparatus comprising means for transforming the reception signal by a Fast Fourier Transformation method. Prismantas et al, in the same field of endeavor, teach an interference detection method involving performing a Fast Fourier Transform analysis (Pg. 2, Par. 22). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Prismantas et al with Borth et al and the admitted prior art in order to characterize the nature of the interference (Pg. 2, Par. 22).

#### ***Allowable Subject Matter***

Claims 5, 6., 12, 13, and 14 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

As to claims 5 and 12, Borth et al teach noise estimation during no transmission section, huang et al (US 6,701,150) teach a method to reduce noise comprising notifying a transmission side wherein the transmission side selects a channel based on the noise distribution notified by the reception side so that channels having a large noise are gathered in a specific band and sending signal subjected to the channel change to the reception side (Fig. 2; Col. 3, Lines 37-61). The admitted prior art teaches interpolation-predicting a noise of a data signal point and canceling a noise of the

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specific band by removing the interpolation-predicted noise from the reception signal (Fig. 4B, Blocks 27-43 and 27-45; Pg. 19, Lines 24 and 25; Pg. 20, Lines 7-14). The prior art of record fails to teach restoring the order of channels by the reception side to an original order and extracting a noise component of a specific band from the specific signal of the reception signal having channels in the restored order.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chan (US 6,032,114), Anderson et al (US 6,351,731), Walton et al (US 2005/0002468), Watanabe (US 5,535,425), Hadad (US 2005/0025042).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam

April 9, 2005

  
MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER

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